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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/503,638	02/14/2000	Kirk D. Prall	MICR131.02	6942

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EXAMINER

PERALTA, GINETTE

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 11/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/503,638

Applicant(s)

PRALL ET AL.

Examiner

Ginette Peralta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-28 and 30-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-28 and 30-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 23-24, 26-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Katayama (U. S. Pat. 5,444,278).

Katayama teaches in Figs. 12, 13, 22, 35, 36 and 37 a semiconductor memory device which comprises a silicon structure (1, 81) having a first conductivity type, a gate electrode (6, 86) over the silicon structure, a capacitor contact region in the silicon structure adjacent to one side of the gate electrode, a bit line contact region in the silicon structure adjacent to the other side of the gate electrode, a first dopant implant (3a, 3b, 83a, 83b) in the capacitor and bit line contact regions, the first dopant having a second conductivity type opposite the first conductivity type, a second dopant implant 104 in only the capacitor contact region, insulating spacers formed by layer 27 extending vertically along the sidewalls of the gate electrode and horizontally over a portion of the first dopant implant in the capacitor and bit line contact regions, a capacitor first conductor (9, 29, 92) in electrical contact with the capacitor contact region, a dielectric (10, 30, 93), and a capacitor second conductor (11, 31, 94) over the dielectric, wherein the

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second dopant concentration is deeper than the first dopant implant, wherein the first dopant implant is implanted at a dosage of about 10^{13} ions/cm² at an implantation energy of 50 KeV (Col. 12, lines 19-21), and the capacitor first conductor comprises polysilicon doped to the second conductivity type with a dosage of $4-8 \times 10^{20}$ ions/cm².

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 25 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama.

Katayama teaches a semiconductor memory device that comprises a silicon structure, a capacitor contact region and a bit line contact region, a first dopant implant in the capacitor and bit line contact regions and a second implant in only the capacitor contact regions.

Katayama teaches all the limitations with the exception of disclosing the depth of the first and second implant.

It is well known in the art that the depth of dopant implants depends on the energy, the dosage, the impurity and the substrate, Katayama teaches energy ranges, and dosage ranges overlapping and included in those taught by the applicant,

furthermore the dopant used is the same, as well as the substrate, thus it would have been obvious to one of ordinary skill in the art that the ranges of depth achieved under the same conditions of implantation would be the same or similar and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or workable ranges involves only routine skill in the art.

Response to Arguments

1. Applicant's arguments filed 9/17/02 have been fully considered but they are not persuasive.

Regarding applicant's argument that Katayama does not teach a second dopant implant in to the contact region, it is noted that Katayama teaches the formation of the second impurity region by both diffusion and implantation, in col. 19, lines 55-67, it is taught that there is a second dopant implant only in the capacitor contact region. It is further noted that the presence of process limitations on product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to the product. *In re Stephens*, 145 USPQ 656 (CCPA 1965).

Regarding applicant's argument that Katayama does not teach the second dopant implant being aligned with the insulating spacer extending over the capacitor contact region such that substantially all of the second dopant implant is formed in only that portion of the capacitor contact region not covered by the insulating spacer, it is noted that the use of the term phrase "substantially all" does not exclude a minimal part

of the second dopant implant being under the spacer, as the second dopant implant or diffusion regions as shown in figs. 35 and 36 are aligned with the capacitor contact region and thus if a minimal part of the dopant implant region is under the spacer, then "substantially all" of the second dopant implant would still be formed in the capacitor contact region not covered with the spacer.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (703)305-7722. The examiner can normally be reached on Monday to Friday 8:00 AM-4:00 PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703)308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

GP
November 21, 2002


LONG PHAM
PRIMARY EXAMINER